MANIKGAD – I: SUMMER- 2017

SUBJECT : HUMAN ANATOMY & PHYSIOLOGY

Day : Thursday
Date : 06/04/2017

Time : 10.00 A.M. TO 01.00 P.M.
Max. Marks : 70

N.B.:

1) Q.No. 1 and Q.No.5 are **COMPULSORY**. Out of the remaining attempt **ANY TWO** questions from each section.
2) Answers to both the sections should be written in **SEPARATE** answer books.
3) Figures to the right indicate **FULL** marks.

SECTION – I

Q.1 A) Answer **ANY FOUR** of the following: **[08]**

i) Give the composition of lymph.
ii) Define and give the normal values of vital capacity.
iii) Give significance of Rh factor in blood group.
iv) What is primary hypertension?
v) What are the major functions of connective tissue?

B) Enlist in detail structure and functions of epithelial tissue. **[03]**

Q.2 a) Draw a neat labeled diagram of conduction system of Heart. Explain in detail cardiac cycle. **[07]**

b) Explain the mechanism of blood clotting. **[05]**

Q.3 a) Define respiration. Explain in detail mechanism of breathing and exchange of gases during respiration. **[07]**

b) Explain structure and functions of lymph node. **[05]**

Q.4 Write short notes on **ANY THREE** of the following: **[12]**

a) ECG
b) Structure and function of spleen
c) Haemopoesis
d) Cardiac arrhythmia

SECTION – II

Q.5 A) Answer **ANY FOUR** of the following: **[08]**

i) Enlist the cranial nerves with their functions.
ii) Write the functions of cerebellum.
iii) Draw a neat labeled diagram of structure of kidney.
iv) Write the functions of skin.
v) Enlist different contraceptive devices.

B) Write a short note on renin angiotensin aldosterone system. **[03]**

Q.6 a) Draw a neat labelled diagram of digestive system; explain location, anatomy and functions of small intestine. **[07]**

b) Write a detailed note on synthesis, release and functions of thyroid hormones. **[05]**

Q.7 a) Draw a neat labeled diagram of female reproductive system and explain in detail menstrual cycle. **[07]**

b) Explain the structure of internal ear with neat labeled diagram. **[05]**

Q.8 Write short notes on **ANY THREE** of the following: **[12]**

a) Physiology of muscle contraction
b) Spermatogenesis
c) Physiology of vision
d) Functional areas of cerebrum

* * * *

Scanned by CamScanner

MANIKGAD – I: SUMMER- 2017
SUBJECT : PHARMACEUTICS

Day : Saturday
Date : 08/04/2017

Time : 10.00 A.M. TO 01.00 P.M.
Max. Marks : 70

N. B. :

1) **Q. No. 1** and **Q. No. 5** are **COMPULSORY**. Out of the remaining attempt **ANY TWO** questions from each section.
2) Figures to the right indicate **FULL** marks.
3) Answers to both the sections should be written in the **SEPARATE** answer books.
4) Draw neat and labeled diagram **WHEREVER** necessary.

SECTION - I

Q. 1 A) Answer **ANY FOUR** of the following: **(08)**

i) Define the terms Isotonicity and proof spirit.

ii) Differentiate between mouth wash and gargles.

iii) Write the role and examples of antioxidants and buffering agents.

iv) Enlist the advantages of pictograms.

v) Write the labeling instruction and patient counseling for elixirs.

B) What is the proof strength of 80 % v/v and 55 % v/v of ethanol? **(03)**

Q. 2 Write in detail about handling of prescription. **(12)**

Q. 3 a) Explain the factors considered for the selection of dose for drugs. **(07)**

b) Write in detail about refilling instruction with example. **(05)**

Q. 4 Write short notes on **ANY THREE** of the following: **(12)**

a) Developmental changes in United States Pharmacopoeia

b) Dusting powders

c) Formulation aspects of collodions

d) Liniments and lotions

P. T. O.

Scanned by CamScanner

SECTION - II

Q. 5 A) Answer **ANY FOUR** of the following: **(08)**

i) Define and classify suppository.

ii) What are infusions and decoctions?

iii) What are sutures? Give any two ideal properties of sutures.

iv) Define displacement value with example.

v) Explain in brief dry gum method for preparation of emulsions.

B) Calculate the amount of mannitol required to prepare 750 ml of 20 % w/v of mannitol solution. **(03)**

Q. 6 Define and classify incompatibility. Explain in detail chemical incompatibility with suitable examples. **(12)**

Q. 7 a) Explain in detail preparation of catgut. **(07)**

b) Explain in detail stability aspects of suspensions. **(05)**

Q. 8 Write short notes on **ANY THREE** of the following: **(12)**

a) Suppository bases

b) Absorbable gelatin sponge

c) Principle of extraction

d) Creaming in emulsions

* * * * *

Scanned by CamScanner

MANIKGAD–I: SUMMER- 2017

SUBJECT: MEDICINAL BIOCHEMISTRY

Day: Tuesday
Date: 11/04/2017

Time 10.00 A.M. TO 01.00 P.M.
Max Marks: 70

N.B:

1) Question **No 1** and **5** are **COMPULSORY**.
2) Out of remaining questions attempt **ANY TWO** questions from each section.
3) Figures to the right indicate **FULL** marks.
4) Answers to both the sections should be written in **SEPERTAE** answer book.

SECTION-I

Q.1 A) Solve **ANY FOUR** of the following: **(08)**

a) What is phenyketonuria?
b) What is chemical jaundice?
c) Give clinical manifestation of deficiency of enzyme uric acid oxidase.
d) Give importance of terminating codon.
e) State catabolism of alanine in one step.

B) What is renal clearance? **(03)**

Q.2 What are functions of liver? Explain liver function test in detail. **(12)**

Q.3 a) What is glycolysis? How the rate of glycolysis is regulated. Give energetic of glycolysis. **(08)**

b) State biochemical role of vitamin thymine pyrophosphate (TPP). **(04)**

Q.4 Write short notes on **ANY THREE** of the following: **(12)**

a) Km and Vmax
b) Biological indicators in the diagnosis of diseases
c) Formation of bilirubin pigment
d) Deficiency of essential amino acids

SECTION-II

Q.5 A) Solve **ANY FOUR** of the following: **(08)**

a) What is replicating origin?
b) What is favism?
c) Give clinical manifestation of the deficiency of folic acid.
d) Give importance of peroxysomes in fatty acid oxidation.
e) State catabolism of glutamate.

B) What are lipoproteins? Give their types. **(03)**

Q.6 What are electrolytes? Give their biochemical functions and how blood pH is regulated? **(12)**

Q.7 a) What is propionate pathway? Explain in detail. **(07)**

b) What are fatty acids? Explain nutritional value of fatty acids. **(05)**

Q.8 Write short notes on **ANY THREE** of the following: **(12)**

a) Diabetes type II and its management
b) Transamination
c) Enzymes specificity
d) Electron transport chain

* * * * *

Scanned by CamScanner

SUMMER- 2017

MANIKGAD – I:

SUBJECT : PHARMACEUTICAL ORGANIC CHEMISTRY

Day : Thursday
Date : 13/04/2017

Time : 10.00 A.M. TO 01.00 P.M.
Max. Marks : 70

N.B.:

1) **Q.No.1** and **Q.No.5** are **COMPULSORY**. Out of the remaining questions attempt **ANY TWO** questions from each section.
2) Answer to both the sections should be written in **SEPARATE** answer books.
3) Figures to the right indicate **FULL** marks.

SECTION – I

Q.1 a) Attempt **ANY FOUR** of the following: **[08]**

i) What are intermolecular forces of molecule?
ii) What is dipole moment?
iii) Draw structure with IUPAC name of any two aldehydes.
iv) What is Lewis acid and base?
v) Draw structure for:
a) 3 – ethyl – 2 – methyl – 2 – pentene
b) 2 – methyl propanol

b) Why chloroacetic acid is more acidic than acetic acid? **[03]**

Q.2 Explain the reaction, mechanism and stereochemistry of E_1 reaction. **[12]**

Q.3 a) Explain the factors affecting SN_1 reaction. **[07]**
b) Explain the inversion of configuration in SN_2 reaction. **[05]**

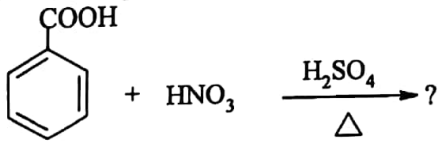
Q.4 Write short notes on **ANY THREE** of the following: **[12]**

a) Free radical chain reaction
b) Structural isomerism
c) Acid-base theories
d) Free radical generation

SECTION – II

Q.5 a) Attempt **ANY FOUR** of the following: **[08]**

i) Compare basicity of amines given below:
a) Methylamine b) Dimethylamine c) Trimethylamine
ii) Define hyperconjugation with example.
iii) Explain effect of substituents on acidity of carboxylic acids.
iv) How will you convert carboxylic acid to its corresponding acid chloride? Give reaction.
v) Predict the product:



b) Write short note on Aldol Condensation. **[03]**

Q.6 Explain in detail electrophilic substitution reaction in benzene with respect to nitration and sulphonation. Add a note on effect of o/m/p – directing groups in ESR. **[12]**

Q.7 a) Explain in detail 1,2 and 1,4 – additions in conjugated dienes. **[07]**
b) Explain preparation, test for purity, assay and medicinal use of Aspirin. **[05]**

Q.8 Write short notes on **ANY THREE** of the following: **[12]**

a) Aromatic nucleophilic substitution reaction
b) Perkin condensation
c) Wittig reaction
d) Reimer – Tieman reaction

* * * *

Scanned by CamScanner

MANIKGAD –I : SUMMER- 2017

SUBJECT : PHARMACEUTICAL INORGANIC CHEMISTRY

Day : Monday
Date : 17/04/2017

Time : 10.00 A.M. TO 01.00 P.M.
Max. Marks : **70**

N. B. :

1) **Q.No.1** and **Q. No.5** are **COMPULSORY**. Out of the remaining questions attempt **Any TWO** from each section.
2) Answers to both sections should be written in **SEPARATE** answer book.
3) Figures to the right indicate **FULL** marks.

SECTION - I

Q.1 A) Solve **Any FOUR** of the following : **(08)**

i) List out the conditions that are responsible for hypernatremia.

ii) Write the chemical reaction involved in the limit test for lead.

iii) Define the terms oxidation and reduction by various ways.

iv) Give the principle involved in the limit test for chloride.

v) Write units of Radioactivity.

B) Give properties of an ideal antimicrobial agent. **(03)**

Q.2 a) Explain electrolyte replacement therapy and electrolyte combination therapy in detail. **(07)**

b) Discuss the principle, reaction and role of each reagent used in arsenic limit test. **(05)**

Q.3 Discuss in detail theories of acid-base indicators. Give the procedure for calibration of burette. **(12)**

Q.4 Write short notes on **Any THREE** of the following : **(12)**

a) Expectorants and its classification

b) Iron deficiency and treatment

c) Determinate errors

d) Classification of volumetric analysis

P.T.O.

Scanned by CamScanner

SECTION – II

Q.5 **A)** Solve **Any FOUR** of the following : **(08)**

i) What are the side effects associated with antacids therapy?

ii) Give the properties, uses and storage conditions of carbondioxide gas.

iii) Give the mechanism of action of saline cathartics.

iv) Why complexometric titration is carried out in buffer solutions?

v) Give properties, uses and storage conditions of oxygen gas.

B) Give the preparation of standardization procedure of 0.01 M perchloric acid. **(03)**

Q.6 **a)** Describe the methods of end point determination in precipitation titration. **(07)**

b) Discuss the pharmaceutical applications of the gravimetric analysis. **(05)**

Q.7 How you will detect the end point in complexometric titrations. Explain types of EDTA titration with suitable example. **(12)**

Q.8 Write short notes on **Any THREE** of the following : **(12)**

a) Types of non aqueous solvents

b) Anticaries agents

c) Pharmaceutical buffer

d) Acidifying agents

* * * * *

Scanned by CamScanner

MANIKGAD -I: SUMMER: 2017
SUBJECT: BIOLOGY

Day: Wednesday
Date: 19-04-2017

Time: 10·00 A·M. To 1·00 P.M.
Max. Marks: 70

N.B:

1) Q.No.1 and Q. No **5** are **COMPULSORY**. Out of the remaining, answer any **TWO** questions from each section.
2) Answers to each section should be written in **SEPARATE** answer book.

SECTION –I

Q.1 A) Answer any **FOUR**: **(08)**

1) Write a note on tap root system.
2) Define i) Placentation ii) Aestivation
3) Sketch and label L.S. of typical flower.
4) Write a note on respiratory root.
5) Write a note on phylloclade.
6) Sketch and label typical leaf.

B) What is phyllotaxy? Mention its types with example. **(03)**

OR

Describe the structure of typical carpel. Mention the function of each part.

Q.2 With the help of floral diagram describe the family Leguminosae. **(12)**

OR

With the help of floral diagrams describe the family Liliaceae.

Q.3 A) Describe any two underground modifications of stem. **(07)**

OR

With the help of labeled diagram describe various regions of root.

B) What is infloresence? Explain recemose infloresence with examples. **(05)**

Q.4 Write short notes on any **THREE** of the following: **(12)**

a) Distinguish between Dicotyledonae and Monocotyledonae.
b) Write a note on characters of Algae.
c) Write a note on Epiphytic roots.
d) Write a note on structure of Chloroplast.

SECTION -II

Q.5 A) Answer any **FOUR**: **(08)**

1) Sketch and label Mitochondria.
2) Give any four characters of class Aves.
3) Write the functions of Squamous epithelium.
4) Write a note on Cardiac muscle.
5) Give the outline of classification of glands.
6) Distinguish between yellow fibers and white fibers.

B) Write the functions of bone **(03)**

Q.6 With the help of well labeled diagram describe ultrastructure of prokaryotic cell. **(12)**

Q.7 A) Give a brief account of lysosomes. **(07)**

OR

Write a note on Heart of frog

B) Write a note on erythrocytes. **(05)**

Q.8 Write short notes on any **THREE** of the following: **(12)**

a) Characters of poisonous snake-cobra
b) T.S. of Testis of frog
c) Write the functions of liver of frog
d) Describe Hyaline cartilage

* * *

Scanned by CamScanner

Pharm - D
I
2017

MANIKGAD – I: SUMMER – 2017
SUBJECT: REMEDIAL MATHEMATICS

Day : Wednesday
Date : 19-04-2017

Time: 10·00 A.M. To 1·00 P.M.
Max. Marks: 70

N. B.:

1) **Q. No. 1** and **Q. No. 5** are **COMPULSORY** out of the remaining attempt **ANY TWO** questions from each section.
2) Figures to the right indicate **FULL** marks.
3) Answers to each Sections must be written in **SEPARATE** answer books.

SECTION - I

Q. 1 a) Attempt **ANY FOUR** of the following: **(08)**

i) Solve the following equations by using crammer's rule
$4x - 3y = 2,\ 3x + 4y = -6$

ii) Find x, y, z if. $\begin{bmatrix} 0 & -5i & x \\ y & 0 & z \\ 3/2 & -\sqrt{2} & 0 \end{bmatrix}$ is a symmetric matrix.

iii) Find the equation of line passing through the points (4, 3) and (3, -5)

iv) Final the length of x-intercept made by the circle
$x^2 + y^2 - 7x + 2y + 12 = 0.$

v) By using cosine rule, prove that
$1 + \cos B = \dfrac{(c+a+b)\ (c+a-b)}{2ca}$

vi) Find the focus and length of latus- rectum for the parabola $3y^2 = 2x$ whose parameter is 2.

b) Prove that **(03)**
$\dfrac{Sin 3\theta}{Sin\theta} - \dfrac{Cos 3\theta}{Cos\theta} = 2.$

Q. 2 Attempt **ANY THREE** of the following: **(12)**

i) If $A = \begin{bmatrix} 1 & 3 & 3 \\ 3 & 1 & 3 \\ 3 & 3 & 1 \end{bmatrix}$ then show that $A^2 - 5A$ is a scalar matrix.

ii) If $A = \begin{bmatrix} 3 & 0 \\ -3 & 1 \\ 4 & 1 \end{bmatrix}, B = \begin{bmatrix} 1 & 0 \\ -2 & 1 \\ 7 & 2 \end{bmatrix}$ *and* $C = \begin{bmatrix} 5 & 7 \\ 1 & 0 \\ 2 & 5 \end{bmatrix}$ find the matrix X such that $2A - 3B + 4X = C.$

iii) Find k, if the following equations are consistent.
$7x - ky = 4,\ 2x + 5y = 9,\ 2x + y = 8.$

iv) Solve the following equation
$\begin{vmatrix} x-1 & x+1 & x+1 \\ x+1 & x-1 & x+1 \\ x+1 & x+1 & x-1 \end{vmatrix} = 0$

P.T.O.

Scanned by CamScanner

Q. 3 **a)** Answer the following:

i) Find the parameter of the point $p\left(\frac{3}{2}, 6\right)$ on the parabola $y^2 = 24x$. Hence find the focal distance of P. **(03)**

ii) Find K, if the line $x - 2y + 6 = 0$ touches the parabola $y^2 = 2Kx$. Also find the point of contact. **(04)**

b) Find the condition that the line $y = mx + c$ may be tangent to the circle $x^2 + y^2 = a^2$. If the condition is satisfied find the point of contact and equation of tangent in terms of slope **(05)**

Q. 4 Attempt **ANY THREE** of the following: **(12)**

i) Show that $\frac{\cos A + \cos B}{Sin A + Sin B} = \cot\left(\frac{A+B}{2}\right)$

ii) Find the acute angle between the following pairs of lines $2x - y + 3 = 0$ and $x - 3y + 7 = 0$

iii) Find the distance of the point (-4,3) on the line $4x - 3y + 38 = 0$

iv) If θ is the acute angle between the lines with slopes m_1 and m_2 then prove that, $\tan\theta = \left|\frac{m_1 - m_2}{1 + m_1 m_2}\right|$

SECTION - II

Q.5 **a)** Attempt **ANY FOUR** of the following: **(08)**

i) Determine the order of degree of the differential equation

$$\left(\frac{d^2y}{dx^2}\right)^2 + \left(\frac{dy}{dx}\right)^3 = e^x$$

ii) If $\int_0^1 (3x^2 + 2x + a)dx = 0$, *find a*

iii) Evaluate $\lim_{x \to 3}\left(\frac{1}{x-3} - \frac{2}{x^2 - 4x + 3}\right)$

iv) Find $\frac{dy}{dx}$, if $y = x.\sin x$

v) Find L $\{e^{-3t} \sin 4t\}$

vi) If $f(x) = x^2$, find $f^1(x)$ from first principle

b) If $a < c < b$ then prove that **(03)**

$$\int_a^b f(x)dx = \int_a^c f(x)dx + \int_c^b f(x)dx$$

Scanned by CamScanner

Q.6 Attempt **ANY THREE** of the following **(12)**

i) Evaluate $\lim_{x \to 0} \frac{5^x + 3^x - 2^x - 1}{x}$

ii) If $y = (\sin x)^{\cos x}$, then find $\frac{dy}{dx}$

iii) If $y = x + \tan x$, then show that $\cos^2 x \frac{d^2y}{dx^2} - 2y + 2x\ 0$

iv) If $u = \log(x^3 + y^3 + z^3 - 3xyz)$, show that $\frac{\partial u}{\partial x} + \frac{\partial u}{\partial y} + \frac{\partial u}{\partial z} = \frac{3}{x+y+z}$

Q.7 **(a)** Answer the following

i) If $u = 3(lx + my + nz)^2 - (x^2 + y^2 + z^2)$ and $l^2 + m^2 + n^2 = 1$, then show that **(03)**
$\frac{\partial^2 u}{\partial x^2} + \frac{\partial^2 u}{\partial y^2} + \frac{\partial^2 u}{\partial z^2} = 0$

ii) If $u = \log\left(\frac{x^2 + y^2}{x + y}\right)$ then prove that by Euler's theorem $x\frac{\partial y}{\partial x} + y\frac{\partial y}{\partial y} = 1$ **(04)**

b) If u and v are differential functions of x and $y = u - v$, then prove that **(05)**
$\frac{dy}{dx} = \frac{du}{dx} - \frac{dv}{dx}$

Q.8 Attempt **ANY THREE** of the following **(12)**

i) Find L {cos at}

ii) Evaluate the following integral using Laplace transform
$\int_0^\infty e^{-t} f(t)\,dt$ given that $L\{f(t)\} = \frac{1}{s\sqrt{s^2+1}}$

iii) Obtain the differential equation by eliminating arbitrary constant from the equation $y = A e^{3x} + Be^{-3x}$

iv) Solve the differential equation $x\,dy + 2y\,dx = 0$ when $x = 2$, $y = 1$

* * * * *

Scanned by CamScanner